



Reducing Emissions from California Vehicles

Motor vehicles are California's leading source of air pollution. California's 34 million residents collectively own more than 25 million vehicles and drive more on average than most other Americans. Controlling pollution from cars and trucks is essential to reducing smog. Through Air Resources Board (ARB) regulations on vehicles and fuel, today's new cars pollute more than 95 percent less than the cars of thirty years ago. Still, more than 50 percent of the state's smog-forming emissions come from motor vehicles.

In 1963 the California Motor Vehicle Pollution Control Board adopted the nation's first motor vehicle emission standards. These standards produced bolt-on pollution controls, such as air pumps that improved combustion efficiency. In 1970, the ARB required auto manufacturers to meet the first standards to control smog-forming hydrocarbon (HC) and nitrogen oxide (NO_x) emissions, the two pollutants most responsible for ozone smog. The standards required the widespread use of catalytic converters beginning in 1975 which help neutralize HC and NO_x.

In 1990, ARB took a major step forward by adopting a sweeping emission control package for automobiles and light trucks known as the Low Emission Vehicle regulation or, as it is known today, LEV 1. LEV 1, which went into effect in 1994, established a new "fleet average", an emission average that declines with each passing year for the entire fleet of passenger vehicles sold in California. LEV 1 also established a requirement that automakers begin developing zero emission vehicles (ZEVs) for sale in California.

Increasing technology advances permitted the next step in 1998, with the adoption of LEV II – the regulatory package that will further reduce emissions in automobiles and light trucks. LEV II takes effect in 2004 and is expected to reduce NO_x emissions by 75 percent and HC emission by 50 percent. The LEV II regulations also require that emissions from SUVs and pickup trucks be reduced to the same level as passenger cars.

The LEV regulations are bringing sweeping reductions in the emissions from automobiles, pickup trucks and SUVs. This can be seen in the following chart, which shows the grams per mile emissions from a new 1965 Chevrolet Malibu, a new 1975 Malibu and a new 2003 Malibu. The decline in emissions is typical of the dramatic decline in passenger car emissions taking place throughout the vehicle fleet as ARB continues passing increasingly more protective motor vehicle emission control standards.

Comparison of Emissions from a 1965, 1975, and 2003 Chevy Malibu			
Chevy Malibu	HC * emissions (gram/mile)	CO ** emissions (gram/mile)	NO _x *** emissions (gram/mile)
1965	8.8	87.0	3.6
1975	0.9	9.0	2.0
2003	.062	1.4	0.1

*HC - Hydrocarbons **CO - Carbon Monoxide ***NO_x - Oxides of Nitrogen

The results of the ARB's emission reduction initiatives can clearly be seen. In the state's most populous area, Los Angeles's South Coast Air Basin, ozone levels are declining sharply. A Stage 1 smog alert is called when ozone levels reach .20 parts per million (PPM). In 1977 the South Coast Air Basin had 121 Stage 1 smog alerts. The number of Stage 1 alerts dropped to 66 in 1987, one in 1997, and there have been no Stage 1 alerts since 1997. There have been no Stage 2 alerts (.35 PPM ozone) in the South Coast Basin since 1988, when there was just one. Most other areas of California have also made significant progress in reducing smog.

The smog check program, which is run by the Bureau of Automotive Repair, also helps reduce emissions from automobiles. New vehicles are exempt from Smog Check for their first four years, except when a vehicle goes through a change of ownership. After that, a smog check is required every two years or whenever the vehicle goes through a change of ownership.

The ARB is also working to reduce emissions from large diesel vehicles. New engine standards will result in big rig trucks, trash trucks and buses that are about 90 percent cleaner by 2007 than today's diesel vehicles.

In 1999, the ARB was a founding member of the California Fuel Cell Partnership, a partnership of government, auto and energy groups dedicated to seeing hydrogen-powered fuel cell vehicles -- vehicles with water vapor as their only exhaust -- used first on the Golden State's roads. Other Partnership goals include exploring the path to commercialization, including public awareness and fueling infrastructure.

Another challenge the ARB is working on is the health risks caused by greenhouse gas emissions. Legislation passed in 2002, AB 1493, directs ARB to achieve the maximum possible cost-effective reduction of greenhouse gases from motor vehicles. Regulations are to be adopted by ARB by January 1, 2005 and to be implemented by Jan. 1, 2009 after review by the state legislature.

For More Information

Please contact the ARB toll-free at (800) END-SMOG (California only) or (800) 242-4450 (outside California).

If you are handicapped, you may obtain this document in an alternative format. Contact ARB's ADA Coordinator at: (916) 322-4505 (voice); (916) 324-9531 (TDD, Sacramento area only); or (800) 700-8326 (TDD, outside Sacramento).

The energy crisis facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of sample ways you can reduce demand and cut your energy costs, see our website:
<http://www.arb.ca.gov>